

What is claimed is:

- 5 1. A method for determining a state of a person,
characterized by:
5 automatically defining a region of interest in an
image indicative of a predetermined feature of the
person using an early vision cue; and
automatically finding the location of the
predetermined feature in the defined region of interest
10 using elastic bunch graph matching.
2. A method for determining the state of a person
as defined in claim 1, characterized in that the step
of defining the region of interest includes roughly
15 locating the region of interest using the early vision
cue and the step of finding the location of the
predetermined feature commences at a rough location
provided by the step of defining the region of
interest.
- 20 3. A method for determining the state of a person
as defined in claim 2, characterized in that the early
vision cue includes at least one of stereovision,
motion, color, convexity, topology, or structure.

4. A method for determining the state of a person as defined in claim 3, characterized in that stereovision is used to produce disparity histograms and silhouette images.

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5. A method for determining the state of a person as defined in claim 1, characterized in that the step of defining the region of interest includes background suppression.

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6. A method for determining the state of a person as defined in claim 1, characterized in that the predetermined feature is the person's face and the state of the person is described by nodes positions of facial elements.

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7. A method for determining a state of a person as defined in claim 1, characterized in that the image is in a sequence of images and the location of the predetermined feature is tracked in a subsequent image.

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8. A method for determining a state of a person as defined in claim 7, characterized in that an erroneous location of the predetermined feature is corrected based on a model of typical facial features.

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9. A method for determining a state of a person as defined in claim 7, characterized in that the method further comprises reinitializing the tracking of the location of the predetermined feature based on a
5 predicted location of the predetermined feature.

10. A method for feature sensing as defined in claim 9, characterized in that the reinitializing step is preformed using bunch graph matching.

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11. A method for determining a state of a person, characterized in that the method further comprises using the location of the predetermined feature for animating a graphical head model.

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12. A method for A method for determining a state of a person, characterized in that the state of the person determined by the method is the degree to which an eye is closed.

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13. Apparatus for determining a state of a person, characterized by:

- means for automatically defining a region of interest in an image indicative of a predetermined
- 5 feature of the person using an early vision cue; and
- means for automatically finding the location in an image of the predetermined feature in the defined region of interest using elastic bunch graph matching.